

## GYNECOLOGY

UNDER THE CHARGE OF

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**Estimate of Radium Therapy in Uterine Cancer.**—STONE (*Am. Jour. Obst.*, 1918, lxxvii, 390) has recently made a report on the estimated value of radium therapy in uterine cancer, based on a study of 400 cases treated at the Memorial Hospital in New York, 80 additional cases being under observation at the time of the report. Radium, they have found, is an agent more peculiarly suitable for the arrest of the progress of the disease than any other method that has been hitherto employed, being more effective in primary lesions than in recurrences. New patients are kept in the hospital three, four or more days in order that the medical records, physical examinations and laboratory tests may be made and sufficient time allowed to recover from the nausea and slight malaise which the application of radium may cause. For purposes of classification the cases are divided into (1) extremely advanced, (2) advanced, (3) borderline and (4) early. Extremely advanced lesions include those in which all the pelvic structures appear to be palpably involved, forming either bulky tumors in the upper part of the pelvis, and often extending far down into the septa between the vagina and rectum or bladder, or a large dugout, ulcerating crater surrounded by a mere shell of tumor tissue closely adjacent to the rectal and bladder walls. Stone feels that any interference with the nutrition of a tumor is an important factor in the result of radium therapy of tumors. A bulky and necrotic tumor never shows any improvement, and in lesions with an ulcerating crater, radium may cause the premature production of rectal and vesical fistule. In a few extremely advanced cases, however, if the nutrition of the tissues appears good, the application of a large amount of heavily screened radium, applied in a pack at some distance from the normal tissues overlying the tumor, will often afford considerable relief from pain. It is in advanced cases, where the parametrial tissues are definitely infiltrated, but where there is a palpable limitation of the tumor process, that radium is effective in arresting the process—relieving pain, stopping hemorrhage and discharge and restoring the general health—the adenocarcinomatous type being more susceptible to the action of radium than the infiltrating epithelioma. The changes produced by an effective dose of radium take place slowly, the tissues becoming edematous and softer by the end of the first week, the discharges sometimes being temporarily increased. By the third week the extra-uterine lesion is less well defined, the pain and discharge gradually diminish, until within two months little, if any, tumor tissue may be felt, leaving finally in many cases only an atrophic uterus fixed in tissue which is indistinguishable from fibrous connective tissue. In some cases a certain amount of tumor tissue may remain, though there is improvement in general health. How long is treatment to be continued in such cases? Under

further application of radium the lesion may improve, but a small ulcerating surface of the cervical mucosa may persist, due to poor nutrition in the surrounding zone of tissue, the age of the patient or overdosage at the first treatment. Radium will convert the borderline lesions, or those in which the growth is largely limited to the uterine wall, into operable lesions, and without surgery it will effect a disappearance of the gross evidences of the disease and restore health in a large number of such lesions more effectively than surgery alone has hitherto been able to do. Early lesions, either of the cervix or body, are rare. However, on the basis of experimental and clinical evidence the application of radium prior to hysterectomy in these early lesions would seem a justifiable mode of procedure. Prophylactic radium therapy after operation is important. It is possible that a number of low-power emanation tubes wrapped in the gauze drainage of the vaginal wound at the time of operation may prove an efficient means.

**Biological and Clinical Evidence of the Therapeutic Value of Radium and Roentgen Rays in Cancer.**—Last year Levin and Joseph reported the results of their investigations on the effect of radium and roentgen rays on cancer cells, by which they showed that radium may deeply impair the proliferating power and consequently the clinical malignancy of cancer cells without producing any change in the morphological appearance of the tumor. The first effect of the rays on a malignant tumor is the inhibition of the proliferating power, in sterilization, as it were, of the cancer cells, the degeneration and destruction of the cancer cells and the formation of the sclerotic connective tissue taking place subsequently under the influence of the rays. In a further recent series of investigations by LEVIN and LEVINE (*Ann. Surg.*, 1918, lxvii, 442) in the Department of Cancer Research at the Montefiore Hospital the above theories were further corroborated. The morphological appearance of radiated tumor tissue is not an absolute criterion of the therapeutic effect produced by the action of the rays on the tumor. While complete destruction of the tumor cells presents the most perfect result of radiotherapy, nevertheless negative morphological findings do not preclude the possibility that the tumor was influenced by the rays. In a series of twenty cases of carcinoma of the rectum which is being prepared for publication *in extenso* by the senior author, the following observation was made: In the cases in which an attempt at a radical operation was made the condition recurred with greater rapidity and malignancy than in those cases in which there was no operation done and only radium and roentgen-ray treatment given or an exploratory operation performed followed by radiations. Similar observations could be made by any surgeon with a large cancer material. Thus pre- and postoperative radiations of cancer as a method of inhibiting the proliferating power and the consequent clinical malignancy of the tumor cells is of undoubted value and presents no danger.

**Treatment of Fibroid Tumors of the Uterus with Radium.**—For the past five years KELLY (*Jour. Med. Soc., New Jersey*, 1918, xv, 145) has been treating fibroid tumors of the uterus with radium, having had altogether 211 cases under treatment, and he has found that all uncomplicated fibroids of whatever size are favorably influenced by

their treatment, which stops hemorrhage, together with menses, the latter either temporarily or permanently, and either causes the tumor to disappear completely or to shrink to very small dimensions. Before beginning radiation he makes sure that the case is one of uncomplicated fibroid tumor, excluding malignancy by curettage and histological examination and appendicitis, cholelithiasis and inflammatory conditions of the tubes and ovaries by careful examination. Of the 211 cases treated with radium at the present time 87 are cured, the tumors having either entirely disappeared or been so reduced as to be insignificant; 14 are so well that, in spite of repeated requests, they have failed to report for examination; in 62 instances the tumors have diminished in size. The last group is not static; it is composed largely of recently treated cases (less than two years), in which the radium has not had time to produce its full effect. The members of this group are constantly augmenting the first group. In addition to these 2 complicated cases are reported unimproved; 8 were operated on after radiation; 2 died of causes unconnected with the treatment; 12 have sent no report; 14 are too early for results and 10 did not complete treatment. Of the 2 cases reported unimproved 1 was complicated by gall-stones and operation advised, but refused; in the other a huge tumor choked the pelvis so completely that abdominal radiation had to be employed. Of the 8 cases operated on after radiation, in 3 cases the fibroid condition was complicated by ovarian cysts, in 2 bleeding was not controlled by a single radiation and, the patients desiring it, an operation was done; in 3 cases there was insufficient reduction of the tumor mass, a calcified uterus being found in one case. The technic as outlined by the author consists in the application of 300 to 500 millicuries of the emanation, covered with a rubber cot, on the end of a uterine sound within the uterus for about three hours. This may be repeated in a few months or an abdominal treatment may be given. For the latter form of treatment one or more grams of filtered radium are used. The package should be placed on the abdomen and shifted about for several hours, giving the skin a minimum and the tumor a maximum radiation. Immediately after treatment there may be nausea for twenty-four hours, some abdominal tenderness and possibly a leucorrheal discharge for several weeks. A second or third treatment is frequently required to bring about amenorrhea. In younger patients a mild treatment is given so that bleeding may be controlled, but menstruation continued. On the basis of his five years' experience the author feels that radium is the treatment of choice in uncomplicated fibroid tumors of the uterus.

**Radium in Gynecology.**—The great value of radium in fibroid tumors of the uterus is further borne out by the experience of WATKINS (*Surg. Clin. of Chicago*, 1918, No. 1, ii, 89). His patient, a woman, aged forty years, suffered from multiple fibroid tumors which made the uterus the size of a three months' pregnancy. Fifty milligrams of radium with 1 mm. brass screening covered by rubber were inserted into the uterine cavity. Three months later the uterus was normal in size, no tumor could be palpated and the patient had skipped the last two periods. In case of chronic metritis, Watkins's results were equally encouraging, the hyperplastic uterus becoming normal in size, two periods following radium insertion, then a cessation for eight months

followed by regular menstruation. In a case of submucous uterine fibroid with cancer, the results were not so good, rectal and vesical symptoms following the application of radium probably because of insufficient screening. During the next three months the deep growth increased rapidly in size, though there was no recurrence of bleeding, discharge or odor, and the superficial wound healed. In a case of extensive inoperable cancer of the body of the uterus there could be no hope of cure, but three administrations of radium were of great palliative benefit, being followed by a marked diminution in pain, a cessation of all offensive discharge and absence of bleeding up to the time of death. He therefore believes that the value of radium as a palliative measure in these very grave cases cannot be overemphasized.

## PATHOLOGY AND BACTERIOLOGY

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**Acute Respiratory Diseases Among Troops, with Special Reference to Empyema.**—BEALS, ZIMMERMAN and MARLOW (*Jour. Infect. Dis.*, 1918, xxiii, 475) report their findings from a study of acute respiratory diseases occurring among troops from September 25, 1917, to June 1, 1918. Out of a total of 9691 admissions to a base hospital, 4443 were cases of acute respiratory infections. The cases occurred in waves with the greatest severity at the crest of each wave. During a period of three months there were 333 cases of measles (including rubella), only 3 cases having complications, otitis media in each instance. Later, when respiratory infections developed, there were not only many cases of pneumonia and empyema, but the cases of measles, though not greatly increased in number, showed severe complications of a respiratory infection, usually streptococcic in origin. Empyema, pneumonia, tonsillitis, otitis media and severe bronchitis were found accompanying measles. The mortality was high, 61.5 per cent., in cases of empyema following measles. When empyema complicated pneumonia the mortality was 38.2 per cent., and in the 22 cases of primary empyema death occurred in 5 cases, or 22.7 per cent. The authors note four distinct types of empyema—fibrinous, serofibrinous, serofibrinopurulent and purulent. The authors found that for a variable period of about a week there was a serofibrinopurulent exudate, and at autopsy there was often found a serofibrinopurulent exudate in one pleural cavity and a fibrinous or serofibrinous in the other. In the majority of cases a streptococcus, usually hemolytic, was the causative agent. The clinical manifestations include rapid and profound toxemia, the rapid formation of, in most cases, a large amount of pleural exudate and a tendency to pocket formation by old and new adhesions in atypical locations. The most marked autopsy findings were the presence of wide-